

## CLAIMS

What is claimed is:

1. A sealing device for a sulfur trap of the type comprising an upper chamber for receiving liquid sulfur and process gas and a lower chamber for receiving liquid sulfur, said device comprising:

an opening between said upper chamber and said lower chamber;

a hollow cylinder extending upwardly from said opening into said upper chamber;

said cylinder having an upper edge;

a float;

a counterweight attached to said float;

said counterweight constructed to sealingly engage said upper edge in a float first position; and

said float and said counterweight having a combined average density less than the density of molten sulfur.

2. The sealing device of claim 1, further comprising:

said float moveable between said float first position and a float floating position;

said counterweight supported on said cylinder upper edge in said float first position;

and

said counterweight removed from said cylinder upper edge in said float floating position.

3. The sealing device of claim 1, further comprising:  
said counterweight having a beveled peripheral surface;  
said cylinder upper edge having a beveled upper edge surface; and  
said counterweight beveled peripheral surface and said beveled upper edge surface  
sealingly engaged in said float first position.
4. The sealing device of claim 3, further comprising:  
said counterweight including a lower extension below said beveled peripheral  
surface;  
said lower extension extending inside said hollow cylinder in said float first position.
5. The sealing device of claim 1, further comprising:  
said counterweight having a lower surface; and  
said counterweight lower surface at least partially arcuate.
6. The sealing device of claim 1, further comprising:  
a cleaning rod attached to said counterweight; and  
said cleaning rod extending downwardly into said hollow cylinder.
7. The sealing device of claim 6, further comprising:  
said hollow cylinder having an interior surface;

said cleaning rod so sized and constructed to engage said interior surface upon relative movement of said float in relation to said cylinder.

8. The sealing device of claim 1, further comprising:

said counterweight having a beveled peripheral surface;

said counterweight including a lower extension below said beveled peripheral surface;

a cleaning rod attached to said lower extension; and

said lower extension extending inside said hollow cylinder.

9. A sealing device for a sulfur trap of the type comprising an upper chamber for receiving liquid sulfur and process gas and a lower chamber for receiving liquid sulfur, said device comprising:

an opening between said upper chamber and said lower chamber;

a hollow cylinder extending upwardly from said opening into said upper chamber;

said cylinder having an upper edge;

a float;

a counterweight attached to said float;

said float and said counterweight having a combined average density less than the density of molten sulfur;

said counterweight having a beveled peripheral surface and a lower surface;

said cylinder upper edge having a beveled upper edge surface;

said counterweight beveled peripheral surface and said beveled upper edge surface sealingly engaged in a float first position; and

said counterweight lower surface at least partially arcuate.

10. The sealing device of claim 9, further comprising:

said float moveable between said float first position and a float floating position;

said counterweight supported on said cylinder upper edge in said float first position;

and

said counterweight removed from said cylinder upper edge in said float floating position.

11. The sealing device of claim 9, further comprising:

said lower surface below said beveled peripheral surface;

said lower surface extending inside said cavity in said float first position.

12. The sealing device of claim 9, further comprising:

a cleaning rod attached to said counterweight; and

said cleaning rod extending downwardly into said cylinder.

13. The sealing device of claim 12, further comprising:

said hollow cylinder having an interior surface;

said cleaning rod so sized and constructed to engage said interior surface upon relative movement of said float in relation to said cylinder.

14. A sealing device for a sulfur trap of the type comprising an upper chamber receiving liquid sulfur and process gas and a lower chamber for receiving liquid sulfur, said device comprising:

- an opening between said upper chamber and said lower chamber;
- a hollow cylinder extending upwardly from said opening into said upper chamber;
- said cylinder having an upper edge;
- a float;
- a counterweight attached to said float;
- said float and said counterweight having a combined average density less than the density of molten sulfur;
- said counterweight and said cylinder upper edge sealingly engaged in a first float position;
- said counterweight having a lower surface;
- said counterweight lower surface at least partially arcuate;
- a cleaning rod attached to said lower surface; and
- said cleaning rod extending downwardly into said cylinder.

15. The sealing device of claim 14, further comprising:

- said float moveable between said float first position and a float floating position;

said counterweight supported on said cylinder upper edge in said float first position;  
and

said counterweight removed from said cylinder upper edge in said float floating position.

16. The sealing device of claim 14, further comprising:

said counterweight having a beveled peripheral surface;

said cylinder upper edge having a beveled upper edge surface; and

said counterweight beveled peripheral surface and said beveled upper edge surface sealingly engaged in a float first position.

17. The sealing device of claim 16, further comprising:

said counterweight including a lower extension below said beveled outer surface;

said lower extension extending inside said cavity in said float first position.

18. The sealing device of claim 14, further comprising:

said hollow cylinder having an interior surface;

said cleaning rod so sized and constructed to engage said interior surface upon relative movement of said float in relation to said cylinder.